

Letter from Alexander Graham Bell to Mabel Hubbard Bell, November 16, 1881, with transcript

ALEXANDER GRAHAM BELL TO MABEL (Hubbard) BELL Hotel Continental, Paris.
November 16th, 1881. My dear little girl:

I am delighted with the results of my talk with Donders this evening. It has been my fortune to find very few people with whom I could discuss the question of “Vowel Theories” — and Donders is one of these.

I am delighted to find that he agrees entirely with me in the results I obtained and which were published in the paper I read before the National Academy a year or two ago. While it has universally been recognized that vowel sounds are characterized by the presence of certain predominant high musical tones — called “Upper — partial tones” or “Overtones” — there has been a difference of opinion as to whether the characteristic tones are musical tones of definite fixed pitch for each vowel — or whether the pitches of the upper partials vary with the pitch of the voice preserving an invariable relation to it.

A study of the resonance pitch of the mouth — cavities during the pronunciation of vowel sounds favoured “The Fixed Pitch Hypothesis” while a study of the records made by the Phonautograph favoured the “Harmonic Hypothesis” without however deciding the question.

I invoked the aid of the Phonograph and the answer was that both the hypotheses were right and both were wrong. The answer was (1) that the characteristic tones were always harmonics of the pitch of the voice (that is that the rate of vibration of the upper partial was always a multiple of the rate of vibration of the vocal chords — that the rate was exactly 1,2,3,4, and etc., — times, as the case might be, the rate of vibration of the vocal chords and never a fractional 2 part) — and (2) that while the pitch of the characteristic high tone

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for each vowel changed with the pitch of the voice it did not preserve an invariable relation to it, but was always that harmonic which was nearest in pitch to the definite resonance-tone of the mouth cavity when the vocal organs were in the position that was necessary for the pronunciation of the vowel. This theory I termed "The Harmonic Fixed Pitch Theory" and it is with this Theory that Donders thoroughly agrees.

There I have given you quite a little bit of a lecture (!) but you told me you liked me to write to you just as I think — and I have done so although I can hardly expect you to make head or tail of the theory — which after all I suppose is not original with me although I may have helped to place it upon a firmer basis than before.

What a regular jaw-breaker of a name I have given it! If you want a good exercise in oral gymnastics just repeat the words "Harmonic Fixed Pitch Theory" — "Harmonic Fixed Pitch Theory" — half a dozen times in succession without stopping — and as rapidly as possible.

I expected to have completed the examinations of the Electrical Exhibition today but breakfast at twelve o'clock shortened my time at the beginning, and dinner with Donders at half-past six curtailed the day at the other end — so that I was only able to give four hours (from 1 to 5 P. M.) to the Exhibition — and even this time was shortened by the necessity of writing some cards of explanation to be attached to the instruments that have just arrived from America. I therefore intend to devote the day-time tomorrow to the completion of the Exhibition — and the evening to the re-examination of those exhibits that have specially arrested my attention.

Friday will be my visiting day and perhaps Saturday also. At all events I expect to be in London on Sunday. Although my historical exhibit of early forms of telephones was only placed in order 3 this morning. I have already received a request to have the instruments duplicated for preservation in the "Conservatoire des Arts et Metiers" at Government

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expense — but I thought it best to have the duplicates made in America and present them to the Conservatoire myself.

I have also had another request for duplicates which I have been unable to refuse. The Proceeds of the Exhibition amounting to half a million of francs — are to be devoted to the endowment of a permanent Museum of Electrical Inventions — and to the establishment of an Electrical Laboratory — where all sorts of electrical experiments can be carried on — and the Directors of the Exhibition have requested me to present to this Museum — a collection of instruments illustrating the progress of the telephone from its commencement — to form the foundation for a historical collection of telephonic apparatus. After the honours that have been showered on my devoted head by France and the Parisians I thought that the least I could do — would be to accede to both requests. Donders is at present the guest of a celebrated Oculist — Dr. Landolt — and it was at his house I dined this evening. There were ten at table.

M. Lionville, the French Depute turned out to be President of the “Institution Nationale des Sourds-Muets de Paris” (Deaf and Dumb Institution) — and of course he and I had a good deal to talk about in regard to the Education of the Deaf. M. Berthelot is a celebrated chemist and we struck common ground in regard to “Radiophony” and Spectrum Analysis by means of sound. Mascart talked Electricity with me, and Donders — Sound. Landolt — as a doctor — was interested in the Induction Balance and Electric Needle and is going to hunt up men with bullets and some prominent surgeons for me — before I visit Paris again on our way to Italy.

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Prof. Gavaret's name is known all over the world as a writer on Physics. The other two gentlemen — (whose names I cannot remember)— I only had a few words with upon the subject of — the weather!

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Madamo Gavaret is on the border-line between young and — not young! — rather inclined towards young. A very sweet face — not exactly pretty — but very attractive expression — with beautiful black eyes. And now my dear — goodnight.

Your loving husband, Alec. P. S. I am so much “under the weather” as the saying is — and so “blue” — that I suspect some stomachic cause. Mr. Watson, Mr. Henck. and Mr. Johnson have been feeling in the same way and one and all blame the water of Paris. I have today for the first time abolished water from my diet and taken to light wine. I think however it is the coldness and dampness of the Exhibition building — rather than the water. It is all very well simply to visit the building — but all who are obliged to remain in it for several hours a day — soon to be affected in a sort of malarial way as we all are. However I feel much better tonight — My dinner party has brightened me up but then I always am brighter at night than in the daytime. Your loving, Alec. P. S. No. 2. Excuse the paper. It is half-past one o'clock A. M . and I cannot get any more. I will run down stairs and post this now for I think you may receive it tomorrow if I do. Alec.